The experiments with calcined air took another form. Six years ago it was found that to render the laboratory air free from floating matter, it was only necessary to permit a platinum wire heated to whiteness to act upon it for a sufficient time. Shades, containing pear juice, damson juice, hay- and turnip-juice, and water of yeast, were freed from their floating matter in this way. The infusions were subsequently boiled and permitted to remain in contact with the calcined air. They are quite unchanged to the present hour, while the same infusions exposed to common air became mouldy and rotten along ago.

It has been affirmed that turnip- and hay-infusions rendered slightly alkaline are particularly prone to exhibit the phenomena of spontaneous generation. This was not found to be the case in the present investigation. Many such infusions have been prepared, and they have continued for months without sensible alteration.

Finally, with regard to infusions wholly withdrawn from air, a group of test-tubes, containing different infusions, was boiled under a bell-jar filled with filtered air, and from which the air was subsequently removed as far as possible by a good air-pump. They are now as pellucid as they were at the time of their preparation, more than two months ago, while a group of corresponding tubes exposed to the laboratory air have all fallen into rottenness.

There is still another form of experiment on which great weight has been laid—that of hermetically sealed tubes. On April 6 last, a discussion on the "Germ Theory of Disease" was opened before the Pathological Society of London. The meeting was attended by many distinguished medical men, some of whom were profoundly influenced by the arguments, and none of whom disputed the facts brought forward against the theory on that occasion. The following important summary of these was then given :—"With the view of settling these questions, therefore, we may carefully prepare an infusion from some animal tissue, be it muscle, kidney, or liver; we may place it in a flask whose neck is drawn out and narrowed in the blowpipe-flame, we may boil the fluid, seal the vessel during ebullition, and keeping it in a warm place, may await the result, as I have often done. After a variable time the previously heated fluid within the hermetically sealed flask swarms more or less plentifully with *Bacteria* and allied organisms."

Previous to reading this statement the author had operated upon tubes of hay- and turnip-infusions, and upon 21 tubes of beef, mackerel, eel, oyster, oatmeal, malt, and potato, hermetically sealed while boiling, not by the blowpipe, but by the far more handy spirit-lamp flame. In no case was any appearance whatever of *Bacteria* or allied organisms observed. The perusal of the discussion just referred to caused the author to turn again to muscle, liver, and kidney, with a view of varying and multiplying the evidence. Fowl, pheasant, snipe, partridge, plover, wild duck, beef, mutton, heart, tongue, lungs, brains, sweetbread, tripe, the crystalline lens, and vitreous humour of an ox, herring, haddock, mullet, codfish, sole, were all embraced in the experiments. There was neither mistake nor ambiguity about the result. One hundred and thirty-nine of the flasks operated on were exhibited, and not one of this cloud of witnesses offers the least countenance to the assertion that liquids within flasks, boiled and hermetically sealed, swarm, subsequently, more or less plentifully with *Bacteria* and allied organisms.

The evidence furnished by this mass of experiments, that errors either of preparation or observation have been committed, is, it is submitted, very strong. But to err is human; and in an inquiry so difficult and fraught with such momentous issues, it is not error, but the persistence in error by any of us, for dialectic ends, that is to be deprecated. The author shows by illustrations the risks of error run by himself. On Oct. 21 he opened the back-door of a case containing six test-tubes filled with an infusion of turnip which had remained perfectly clear for three weeks, while three days sufficed to crowd six similar tubes exposed to mote-laden air with *Bacteria*. With a small pipette he took specimens from the pellucid tubes, and placed them under the microscope. One of them yielded a field of Bacterial life, monstrous in its copiousness. For a long time he tried vainly to detect any source of error, and was perfectly prepared to abandon the unvarying inference from all the other experiments, and to accept the result as a clear exception to what had previously appeared to be a general law. The cause of his perplexity was finally traced to the tiniest speck of an infusion containing *Bacteria*, which had clung by capillary attraction to the point of one of his pipettes.

Again, three tubes containing infusions of turnip, hay, and mutton, were boiled on Nov. 2 under a bell-jar containing air so carefully filtered that the most searching examination by a concentrated beam failed to reveal a particle of floating matter. At the present time every one of the tubes is thick with mycelium and covered with mould. Here surely we have a case of spontaneous generation. Let us look to its history.

After the air has been expelled from a boiling liquid it is difficult to continue the ebullition without "bumping." The liquid remains still for intervals, and then rises with sudden energy. It did so in the case now under consideration, and one of the tubes boiled over, the liquid over-spreading the resinous surface in which the bell-jar was imbedded, and on which, doubtless, germs had fallen. For three weeks the infusions had remained perfectly clear. At the end of this time, with a view of renewing the air of the jar, it was exhausted, and refilled by fresh air which had passed through a plug of cotton-wool. As the air entered, attention was attracted by two small spots of penicillium resting on the liquid which had boiled over. It was at once remarked that the experiment was a dangerous one, as the entering air would probably detach some of the spores of the penicillium and diffuse them in the bell-jar. This was, therefore, filled very slowly, so as to render the disturbance a minimum. Next day, however, a tuft of mycelium was observed at the bottom of one of the three tubes, namely that containing the hay-infusion. It has by this time grown so as to fill a large portion of the tube. For nearly a month longer the two tubes containing the turnip- and mutton-infusions maintained their transparency unimpaired. Late in December the mutton-infusion, which was in dangerous proximity to the outer mould, showed a tuft upon its surface. The beef-infusion continued bright and clear for nearly a fortnight longer. The recent cold weather caused me to add a third gas-stove to the two which had previously warmed the room in which the experiments are conducted. The warmth of this stove played upon one side of the bell-jar; and on the day after the lighting of the stove, the beef-infusion gave birth to a tuft of mycelium. In this case the small spots of penicillium might have readily escaped attention; and had they done so we should have had three cases of "spontaneous generation" far more striking than many that have been adduced.

(*To be continued.*)

NOTES

M. E. QUETELET has issued a Notice giving a brief account of the recent progress of the Brussels Observatory, which has been established only in the face of great difficulties. In 1833 meteorological observations were commenced to be made, and a few years after astronomical observations were added by the elder Quetelet. The work which is at present being carried on has for its object a general revision of the variable stars. Seventy

thousand positions have already been collected—forty thousand for right ascensions and thirty thousand for declinations. Two-thirds of these observations are published, the rest is calculated, and will be printed as soon as the resources of the Observatory permit. For fifty years a series of observations have been carried on in reference to the variations of the magnetic needle at Brussels, the results of which M. Quetelet hopes to be able by and by to publish. He, however, feels that if Brussels is to keep up with the science of the day, much remains to be done. A Commission appointed in 1874 to report on the Observatory gave in their report at the end of that year, and their principal conclusions are as follows :—To complete the magnetic system of the Observatory by the acquisition of self-registering instruments, to organise the International Meteorological Service, to obtain an equatorial of large dimensions with the accessories necessary to the spectroscopic investigation of the heavens, and to increase the number and improve the position of the observer. The Ministry have, unfortunately, not yet come to a decision on these conclusions, though we hope they may do so soon, and enable the valuable work of the Observatory to be carried on with complete efficiency, and the results be regularly given to the scientific world. Meanwhile, the work of the Observatory is being regularly carried on on the old lines.

THE new Aquarium at Westminster was opened on Saturday last by the Duke of Edinburgh ; but though the building is sufficiently complete for concerts to be held, it will be many weeks before the tanks are in a proper condition to receive water. The arrangements connected with the aquarium proper have been under the direction of Mr. W. A. Lloyd, who planned the Crystal Palace and other aquaria. There are in this latest development of aquarium construction two or three new points worthy of attention. The water in flowing from one tank to another will overflow from one and pass down a tube, so that it enters the next at the bottom, by which means a more thorough mixture than has hitherto been attained will be ensured of the water that has been exposed to the surface aëration. The reservoir which occupies the space under the large hall is divided into nine compartments, so that in case of an accident to any part, it can be cleared of the water and repaired while the other sections remain in operation. The total capacity of the reservoir is 600,000 gallons, and the total amount of water in reservoir and tanks together will be 750,000 gallons. For the circulation eight rotary vulcanite pumps are erected, and they are capable of sending 56,000 gallons an hour through the tanks if needed, to meet any emergency, though it is calculated that 15,000 to 20,000 gallons will be about the average amount. The plan of forcing downwards small jets of water into each tank, as at the Crystal Palace, is adopted. In the anemone tanks the water will be periodically emptied, representing, to some extent, tidal action. The salmon will have a fifty-feet run, and so will the wrasse. All the pipes, culverts, &c., are of vulcanite, but the glass fronts of the tanks are fitted in cork, with the exception of some of the limestone rock-work, which may probably be too soluble ; everything that forethought could arrange in accordance with our present knowledge seems to have been attended to. It is to be hoped that the scientific results obtained will not be out of proportion to the cost of the undertaking. The official guide-book published on Saturday contains a useful article on aquarium management by Mr. Lloyd, and the *Gardeners' Magazine* of last week has also a contribution from his pen on the rise and progress of aquaria in England ; the *Morning Post* of Saturday last contained an interesting article. The cover of the official guide-book is ornamented with a woodcut by Tenniel, which is quite equal to his happiest efforts in *Punch*.

THE Committee of Science of the Irish Academy will meet on Feb. 28 to take into consideration applications for assistance out of the parliamentary grant for the preparation of scientific reports ; and it is requested that all such applications be forwarded to the secretary on or before that date.

THE Montsouris Observatory has been supplied with a number of recording apparatuses for barometric pressures constructed on new principles, and instruments for recording thermometric variations have been made on aneroid and bi-metallic principles. A steel needle guided by these dilatations traces a curve on a rotating cylinder. The anemometer records by a magnetic contrivance devised by M. Mangon. M. Marie Davy has also established an apparatus for recording the pressure exerted by the wind. A specially devised mirror has been arranged to indicate the direction of the clouds, which it is rather difficult to discover from direct inspection of the clouds themselves.

DR. SAMUEL BIRCH has been appointed to the Rede Lectureship in the University of Cambridge. He will deliver his lecture about Easter.

AT the January meeting of the Photographic Society, the hon. secretary read a note on the action of eosin on the photographic spectrum, by Captain J. Waterhouse, B.S.C., assistant surveyor-general of India. Tetrabromfluorescin, or eosin as it is termed commercially, is a dye remarkable for its intense fluorescence and beautiful pink colour. Its absorption spectrum is characterised by a very strong band between E and F, which fades off on either side and terminates half way between D and E, and half way between F and G. At the part of the spectrum indicated, photographic action was increased to a marked degree when the collodion was stained with the dye. Captain Waterhouse naturally inferred that greens, *e.g.* foliage, would exhibit more detail if photographed on eosin-stained plates, but this was not the case, the only effect was to make the whole action of the light slower. Vogel's observations have thus been confirmed so far as the spectrum effects are concerned ; the want of action when coloured surfaces are photographed is however at variance with his results obtained, we believe, by photographing coloured papers. By the kindness of Mr. John Spiller, to whom Captain Waterhouse's letter was addressed, we have been enabled to see some of his spectrum photographs, and they certainly surpass any results of the kind we have yet seen.

The *Journal d'Hygiène*, No. 8, of Dr. Prosper de Pietra Santa, contains several articles of interest. The *Climat de Pau* gives a brief *résumé* of the meteorological characteristics of this place, in which special prominence is given to the chief feature of its climate, viz. the remarkable calmness of its atmosphere, which, combined with a light porous soil draining away the rains as they fall, and the great beauty of its environs, have made the reputation of Pau as a desirable winter and spring sanatarium. In *L'Emigration dans le Midi de la France* attention is directed to the varied climates of France in their therapeutic relations, which are classed, according to their characteristics in these respects, into sea-climates, such as Cannes, Menton, Ajaccio, and parts of Nice, Hyères, and Alger ; hill climates, such as Pau, Orthez, Le Cannet, and parts of Nice, Hyères, and Alger ; and mixed or intermediate climates, such as Arcachon, Vernet, and Amélie-les-Bain. The determination landward of sea climates which are considered as consisting in an atmosphere containing a minimum of miasmatic matters, a maximum of oxygen, the air impregnated with fine particles of chloride of sodium, and with a peculiar odour derived from marine plants charged with bromine and iodine, is a point of considerable importance.

THE *Bulletin International* of the Paris Observatory of the 18th inst. is the first number of a new issue, executed by the printing establishment of MM. Yves and Barrel, by the process of photo-engraving, of which a brief account is given. The

whole process occupies only from two and a half to three hours. The greatest care will continue to be taken to make the *Bulletin* a medium of the most recent information relating to astronomy and meteorology, particularly the meteorology of each of the regional districts, so as to secure that unity of action among French meteorologists without which nothing of real importance can be done.

IN the *Bulletin International* of the Observatory of Paris for the 13th inst. is given a table showing the depth of the water of the Seine at Paris on each day during 1875 by two gauges, one placed on the Pont de la Tournelle, and the other on the Pont Royale. The gauge on the Pont de la Tournelle is graduated from the point to which the water of the Seine fell during 1719. The mean height of the Seine during 1875 was $2\frac{1}{3}$ feet, the maximum height $10\frac{3}{4}$ feet on Jan. 28, and the minimum $\frac{1}{3}$ foot below the zero of the scale. The greatest flood hitherto recorded was 27 feet in 1658, and the greatest drought $3_{\frac{1}{3}}$ feet below zero on Sept. 29, 1865.

IT is announced that the *Atlas Météorologique* for the years 1872-73-74 will appear in a few days, and it is hoped that the *Atlas* for 1875 will be ready for issue in the end of July next.

A MICROSCOPICAL club has been founded at Honolulu, which promises to be very successful. The visit of the *Challenger* to the Sandwich Islands seems to have been the immediate occasion of this laudable step being taken, as the late Dr. Von Willemoes-Suhm is mentioned in connection with it. Already there are forty members, who have subscribed 800 dollars to purchase a large microscope from Beck and Smith of London. The club will find plenty of work in the investigation of the natural history of these interesting islands, and we hope the members will not confine their investigations merely to microscopical subjects.

OUR readers no doubt know that we have a younger French sister who appears under the name of *La Nature*. We have just received from Germany a specimen of another of the family, rejoicing in the name of *Die Natur*. This seems, however, to be a new series of an old-established journal, but whether it has always appeared under its present name we cannot make out. It is conducted by Dr. Otto Ule and Dr. Karl Müller, of Halle, is mainly devoted to natural history, and the number sent us contains several interesting articles ; among these is one on the African Steppes, by Dr. Ule.

AT the Royal Geographical Society, on Monday night, Sir H. C. Rawlinson intimated that Lieut. Cameron was still at Loando, and would remain there until he saw his men safely embarked for their homes in East Africa. He will stay two months in Madeira to recruit his health before returning to England, where he is expected soon after Easter. Sir Henry stated that the map of Cameron's route would probably be ready by the time of the next meeting of the Society, as also the extremely valuable register of his observations. Major-General Sir F. M. Goldsmid then read a paper on the recent journey of Capt. G. Napier on the Turcoman frontier of Persia.

SUCCESSFUL experiments have been carried on by the French Great Northern Railway at Paris with electric lighting. With a steam-engine of three-horse power, a light equal to 100 ordinary lamps, each consuming 150 litres of gas per hour, has been obtained regularly for almost any length of time. It is contemplated by the engineers of the company to place four electric lamps in the large nave, which is 200 metres long and 60 metres high. The lighting of the company's workshops at La Chapelle will also be attempted with ten lamps. The buildings cover forty acres, and are now lighted by 700 gas lamps. It is stated that the Lyons Company will try to make use of Gramme's magneto-electric machines to light up the way.

THERE will be an examination at Gonville and Caius College, Cambridge, on the 4th of April, for two Shuttleworth Scholarships, each of the value of 60*l.* per annum, and tenable for three years. The subjects of examination are Botany and Comparative Anatomy in its most general sense (including Zootomy and Comparative Physiology). Candidates must be registered medical students of the University of Cambridge who shall have kept not less than eight terms, have passed the additional examination required for candidates for honours, and produce satisfactory testimonials of good conduct. For further information apply to the Rev. N. M. Ferrers, Tutor of the College.

THE trustees of the Johnson Memorial Prize, Oxford, propose the following subject for an essay :—"The History of the successive stages of our knowledge of Nebulæ, Nebulous Stars, and Star-clusters from the time of Sir William Herschel." The Prize is open to all members of the University of Oxford. Candidates are to send their Essays to the Registrar of the University under a sealed cover marked "Johnson Memorial Prize Essay," on or before the 31st day of March, 1879.

PROF. DEWAR commences his lectures as Jacksonian Professor at Cambridge on Tuesday next; the subject is Organic and Animal Chemistry.

WE have received a very significant publication from the Chief Inspector of Mines of Victoria, Australia, in the form of a large sheet printed in Chinese, and containing the provisions of the Regulation of Mines Statute for the colony. There are, we believe, 11,294 Chinese miners in Victoria, many of whom know nothing of the English language. In some of the districts they are employed in quartz and in alluvial mines of great depth, and the Victorian Government have acted wisely in taking this method to make them acquainted with the mining regulations.

THE Report of the Kew Committee for the year ending Oct. 31, 1875, shows that the usual work at the Kew Observatory has been diligently carried on during the past year.

WE have received from their respective publishers "The Year-Book of Photography" (Piper and Carter, Gough Square, E.C.) and the "British Journal Photographic Almanac" (H. Greenwood, York Street, Covent Garden). Both contain many admirable articles on photographic subjects, but it is to be regretted that, failing a more scientific treatment of the art and the development of new methods of manipulation, these annuals, instead of recording progress, serve up the same weary course of glass-cleaning, bath treatment, posing, lighting, and printing, year after year. The frontispiece to the "British Journal Photographic Almanac" is a charming child study by Faulkner, entitled "Simplicity," but is by no means an admirable example of photo-mechanical printing.

A FURTHER attempt is being made to introduce salmon into the Antipodes this year under perfectly new conditions. The New Zealand Government and Sir Samuel Wilson, of the Victoria Acclimatisation Society, had simultaneously asked Mr. Buckland to undertake the task of sending ova to Otago and Melbourne respectively. Mr. Buckland, in conjunction with Mr. J. A. Youl, arranged to make both shipments at once, and the eggs, collected in the Severn, Dart, Ribble, and other rivers, have accordingly been sent out, packed in moss and ice, by steamer, to Melbourne. The passage is estimated to occupy about fifty days. One portion of the eggs will be landed at Melbourne, and the others, if they are in good condition, will be at once repacked and transhipped for Otago, where they are estimated to arrive about a fortnight or three weeks after leaving Melbourne. The eggs were all in proper condition when they left London on board the *Durham*, and there is every prospect of their reaching Melbourne, at least, in safety.

By a curious coincidence, intelligence has just reached us of the safe arrival in Auckland, New Zealand, of 40,000 salmon eggs from the Columbia River, North-west America. These eggs were sent from San Francisco by steamer, consigned to the Napier Acclimatisation Society; but on arrival at Auckland they were found to be so far advanced that it was determined not to risk sending them all to Napier, but to distribute them immediately in suitable localities in the neighbourhood. One half was thus treated, and the remaining 20,000 were sent on to their original destination, Napier. There is every probability that an actual colony of salmon has now been planted in New Zealand, for the fry were in a very healthy condition, and great care was taken by Mr. Firth to protect those placed in the rivers from all possible enemies.

The last issued number of the Transactions of the Institute of Engineers and Shipbuilders of Scotland contains a paper, by Prof. James Thomson, on "Comparison of Similar Structures as to Elasticity, Strength, and Stability."

In a report published by General Chanzy, Governor-General of Algeria, it appears that the organisation of a sanitary service has been completed all over a country which is larger than Great Britain. In every district has been established a *médecin de colonisation*, who is appointed after having passed a special examination, is paid by Government, and is not allowed to take fees.

A paper on the *Batrachia* and *Reptilia* of Costa Rica, with notes on the reptiles of Nicaragua and Peru, by Prof. Cope, has recently appeared in the quarto journal of the Philadelphia Academy of Natural Sciences. Most of the Costa Rican materials were obtained from the researches of Dr. William M. Gabb, who was engaged for several years in exploring that country in behalf of the Costa Rican Government, by which he has added very largely to our knowledge of the geography, geology, general natural history, and ethnology of the region. He has already published many papers in all these departments, and it is to him we owe our only reliable information in regard to the Costa Rican aborigines. The first series of the collections made by Dr. Gabb have all been presented by him to the National Museum, in Washington, and they constitute a highly valued portion of the extensive collections of the establishment. Other collections employed in this memoir are those of Dr. Van Patten and Mr. C. N. Riotti, these covering the region extending from the Atlantic to the Pacific. Eighty-nine species were furnished by Prof. Gabb, of which thirty-seven were new to science. The total number of species known from all investigators in Costa Rica is 132, and it is probable that a large number yet remain to be discovered, showing that the region is rich in terrestrial cold-blooded vertebrates.

The additions to the Zoological Society's Gardens during the past week include a Leopard (*Felis pardus*) from Africa, presented by Mr. F. Elton; a Black Lemur (*Lemur macaco*) from Madagascar, presented by Mr. Dugald Gilchrist; a Common Marmoset (*Hapale jacchus*) from Brazil, presented by Master F. F. Goodliffe; two Gannets (*Sula bassana*), European, presented by Lieutenant-Colonel Dugmore; a Rose Hill Parrakeet (*Platycercus eximius*) from New South Wales, presented by Mr. J. Smith; a Roseate Cockatoo (*Cacatua roseicapilla*) from Australia, presented by Dr. Bree; three Brazilian Caracaras (*Polyborus brasiliensis*) from South America, deposited; a Coypu Rat (*Myopotamus coypus*), a Spotted Cavy (*Cœlogenys paca*), a Central American Agouti (*Dasyprocta punctata*) from South America, a White-spotted Crake (*Porzana notata*) captured at sea off Cape Santa Maria, three Geoffroys Terrapins (*Platemys geoffroyana*) from the Argentine Republic, a Maximilian's Terrapin (*Hydromedusa maximiliani*) from Brazil, purchased.

SCIENTIFIC SERIALS

The current number of the *Quarterly Journal of Microscopical Science* commences with a memoir, by Dr. G. Thin, on the structure of hyaline cartilage as found by immersing it in a solution of caustic potash at 107° F., and otherwise. A successful potash preparation shows flattened polygonal cells adhering to each other exactly like an epithelium. Much manipulatory experience is necessary for the demonstration of these, and it must be mentioned that the author has "a strong conviction of the uniformity of plan in the general structure of the tissues."—Mr. Hugh Price writes on a polystomatous condition of the hydranths of *Cordylophora lacustris*, and figures his specimens. His observations tend to show that the polystomatous condition may be due to injury of the parent hydranth.—Prof. E. R. Lankester, F.R.S., contributes two papers; the first, including further observations on a peach, or red-coloured Bacterium (*Bacterium rubescens*), in which a further account of that organism is given. The second is a valuable account of Prof. Haeckel's recent additions to the Gastræa-theory, illustrated by four important plates exemplifying the letterpress. The following terms are fully explained: Palingeny and Cenogeny, the tendency to recapitulation and to suppress the details of ontogenetic development; Heterochrony and Heterotopy, the perturbations in ontogeny as regards time and space. The conceptions with which these terms are associated must be fully mastered by all who study evolution from its developmental aspect. The four chief types of egg-cleavage and of Gastrula-formation are then explained, and the stages which each undergo, the monerula-, cytula-, morula-, blastula-, and gastrula-stages are recounted, the prefixes archi-, amphi-, disco-, and peri- being applied to the four respectively. The nomenclature, though at first apparently formidable, much simplifies this otherwise complex subject.—Mr. C. S. Tomes, in writing on the development of teeth, gives a summary of the many and important results at which he has arrived in his valuable researches, together with the investigations of others which bear on the subject. Goodsir's primary open dental groove is shown to have no existence. In reality an ingrowth is shown to develop from the deep layer of the epithelium, consisting of a double layer of cells burrowing down into the submucous tisssue, and looking in transverse section like a tubular gland. The next stage consists of an active growth of cells in the deepest end of the epithelial inflection, the immediately subjacent tissue at almost the same time becoming elevated at corresponding points where teeth are to be developed; the subjacent tissue forming a conical papilla, the enamel organ appearing with or even before the papilla. Many important points in the tooth-development of the lizard and fish are also discussed.—Dr. Percival Wright has a note on *Stenogramma interrupta*, in which the author proves that the tetrasporic fruit of that rare and beautiful Alga was described by Dr. W. H. Harvey, contrary to the assertion of Mr. E. M. Holmes.—Mr. W. Bevan Lewis describes the best methods of making preparations of sections of cerebral and cerebellar cortex for microscopical examination.—Mr. H. C. Sorby, F.R.S., has a paper on the evolution of Hæmoglobin, based mainly on the fact that the centres of the hæmoglobin bands from the red blood of *Planorbis* lie two and a half or three millionths of a millimetre nearer the blue end of the spectrum than do those of vertebrate blood.—Reviews of Dr. Klein's "Anatomy of the Lymphatic System," Part II., and of the English translation of Frey's "Histology and Histochemistry of Man," are also given, followed by notes, proceedings of societies, &c.

The number for July 1875 of Siebold and Kölliker's *Zeitschrift für Wissenschaftliche Zoologie* opens with a valuable contribution by Dr. Claus, to our knowledge of the parasitic Copepoda, under the following headings:—The genus Hersilia; the classificatory value of the oral apparatus; the Ergasilidæ; the Nereidicolidæ; the Ascidicolidæ; the Siphonostoma, and the genus Lamproglena. Several excellent plates illustrate the paper. Dr. Claus concludes that a natural classification is at present impossible, because of the gaps in our knowledge of many points in the organisation and development of these remarkable parasites.—Dr. Ludwig Stieda gives a detailed description of the general and microscopic structure of the brain and spinal cord in the Chelonia, derived from the examination of *Testudo Græca* and *Emys Europæa*—a much-needed acquisition.—Dr. Ludwig Graff describes several new species of Turbellaria.—O. Bütschli, in a controversial article on the Infusoria, contests the received interpretations of the phenomena following their conjugation, and endeavours to show that Häckel and Claus have made no real